



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,276	01/28/2004	Sadami Takeoka	56937-107	7583

20277 7590 03/27/2007  
MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER
----------

SIEK, VUTHE

ART UNIT	PAPER NUMBER
----------	--------------

2825

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.



# Office Action Summary

Application No.

10/765,276

Applicant(s)

TAKEOKA ET AL.

Examiner

Vuthe Siek

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 3-14, 16 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) 1, 2, 15 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-7, 11, 16, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 8-14 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.



### DETAILED ACTION

1. This office action is in response to application 10/765,276 and response filed on 12/21/2006. Claims 3-16 and 21-23 are elected [without traverse] for examination. Due to typical error in office action dated 11/28/06, claims Group II should be 3-14, 16 and 21-23, therefore claims 3-14, 16 and 21-23 are elected for examination. Non-elected claims 1-2, 15, 17-20 are requested to cancel in the next communication.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 3, 4, 7 and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The above claimed invention appears to be to an abstract idea than a practical application of the idea. The claimed invention does not result in an output transformation that provides a useful, concrete and tangible result. For example, claim 3 recited, "**each of defined faults** which are delay faults assumed to exist in a semiconductor integrated circuit is **weighted**". The limitation appears to be to an abstract idea. The limitation of "**a ratio** of the total of the weights with respect to the delay faults detected by the test sequences for delay faults to the total of the weights with respect to the defined delay faults is set as a fault coverage" appears to be to an abstract idea. Also the limitation of "thereby evaluating the quality of the test sequences for delay faults" appears to an abstract idea. The



Art Unit: 2825

claimed invention is appeared to be to an abstract idea because the claimed invention does not provides a practical application that produces a useful, concrete and tangible result. A tangible requirement does require that the claim must recite more than a 101 judicial exception, in that the process claim must set forth a practical application of that 101 judicial exception to produce a real-world result. In addition, the claimed invention does not provide utility. Therefore, the claimed invention appears non-statutory.

### ***Claim Objections***

4. Claim 5 is objected to because of the following informalities: the limitation of “a relative value of a design delay value...” needed to clearly define. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 3-5, 7, 16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kapur et al. (6,453,437 B1).

7. As to claims 3 and 4, Kapur et al. teach a method for evaluating the quality of test sequences (test vectors) (Fig. 11A-11b; 7 and its description) comprising generating quality of test vectors (test sequences) to detect delay faults (design delays for all paths that are within certain acceptable tolerance of longest circuit path; Fig. 11A-11B).

Detected delay faults are considered as weights for all generated quality of test vectors



Art Unit: 2825

(test sequences). As shown in Fig. 7, long delay paths 801 and 803 are detected as delay faults because the circuit paths are within acceptable tolerance of longer circuit paths, where the circuit path 802 is not detected using the quality test vectors (quality of test sequences). These teachings of Kapur et al. would anticipate calculating a ratio as defined in the claims.

8. As to claim 5, Kapur et al. teach a relative value of a design delay value on a signal path on which a delay fault is defined with respect to a timing design request value on the delay fault defined signal path is used as the weight (Fig. 11B, 1208 and 1209).

9. As to claim 7, Kapur et al. teach a gate stage number with respect to the delay fault defined signal path is used as the weight (Fig. 6, 8, 9, 10).

10. As to claim 16, Kapur et al. teach evaluating the quality of test vectors (test sequences) to calculate a fault coverage (Fig. 7, 11A-11B, Fig. 7 shown detected faults on critical paths 801 and 803).

11. As to claim 21, Kapur et al. teach determining whether the circuit path is within a certain acceptable tolerance of the longest circuit path is used as the weight (ratio) (Fig. 11A-11B).

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the



Art Unit: 2825

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kapur et al. (6,453,437 B1) in view of Rearick et al (6,708,139 B2).

14. As to claims 6 and 22, Kapur et al. do not a clock rate with respect to the delay fault defined signal path is used for the timing design request value on the delay fault defined signal path. Rearick et al. et al. teach using a clock rate to evaluate quality of test sequences to detect delay faults of all longest paths provide more reliability (Fig. 3-4; col. 8 lines 45-67; col. 9 lines 1-40). Combining the teachings would have been obvious to practitioners in the art at the time the invention was made to provide more reliable in evaluating the quality of test sequences.

***Allowable Subject Matter***

15. Claims 8-14 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and if rewritten to overcome the rejection(s) under 35 U.S.C. 101 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record does not teach or fairly suggest all claimed limitations as recited in the claims 8, 9, 10 and 23.



Art Unit: 2825

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on (571) 272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek

  
VUTHE SIEK  
PRIMARY EXAMINER